Electronic Supplementary Information for:

**Reductive Electropolymerization of Bis-tridentate Ruthenium Complexes with 5,5''-Divinyl-4'-tolyl-2,2':6',2''-terpyridine**

*Bin-Bin Cui,†‡ Hai-Jing Nie,† Chang-Jiang Yao,† Jiang-Yang Shao,† Si-Hai Wu,† and Yu-Wu Zhong*†*

†Beijing National Laboratory for Molecular Sciences, CAS Key Laboratory of Photochemistry, Institute of Chemistry, Chinese Academy of Sciences, Beijing 100190, China;‡University of Chinese Academy of Sciences, Beijing 100049, China

*Email: zhongyuwu@iucas.ac.cn

http://zhongyuwu.iucas.ac.cn/
Figure S1. Reductive electropolymerization of 0.5 mM $[3](PF_6)$ in 0.1 M Bu$_4$NClO$_4$/CH$_3$CN by (a) 30 and (b) 45 repeated cyclic potential scans at 100 mV/s between $-1.00$ and $-1.80$ V vs Ag/AgCl.
Figure S2. (a) CV of \([4](\text{PF}_6)\) at glassy carbon in 0.1 M \(\text{Bu}_4\text{NCIO}_4/\text{CH}_3\text{CN}\). (b) CV of poly-[4](\text{PF}_6). The red curves show the separate anodic and cathodic scans, where no charge-trapping peaks are observed. The scan rates were 100 mV/s.
Figure S3. (a) CV of [5](PF₆)₂ at glassy carbon in 0.1 M Bu₄NClO₄/CH₃CN. (b) CV of poly-[5](PF₆)₂. The scan rates were 100 mV/s. The red curves show the separate anodic and cathodic scans, where no charge-trapping peaks are observed.
Figure S4. (a) CV of [6](PF₆)₂ at glassy carbon in 0.1 M Bu₄NClO₄/CH₃CN. (b) CV of poly-[6](PF₆)₂. The scan rates were 100 mV/s. The red curves show the separate anodic and cathodic scans, where no charge-trapping peaks are observed.
Figure S5. Reductive electropolymerization on ITO glass electrodes of 0.5 mM of (a) [3](PF₆), (b) [4](PF₆), (c) [5](PF₆)₂, and (d) [6](PF₆)₂ in 0.1 M Bu₄NClO₄/CH₃CN by 30 repeated cyclic potential scans at 100 mV/s, respectively.
Figure S6. (a,c): Absorption spectral changes of (a) poly-[3](PF$_6$) and (c) poly-[6](PF$_6$)$_2$ film on ITO glass electrodes with surface coverage of 0.6 × 10$^{-8}$ and 0.5 × 10$^{-8}$ mol/cm$^2$, respectively. (b,d): Transmittance changes monitored at (b) 516 nm between 0 V and +0.56 V vs Ag/AgCl for poly-[3](PF$_6$) film and (d) 490 nm between +0.9 V and +1.5 V vs Ag/AgCl for poly-[6](PF$_6$)$_2$ film.
$^1$H NMR of ligand 2 (dvtpy) in CDCl$_3$:  

![NMR spectrum image]

Electronic Supplementary Material (ESI) for Dalton Transactions  
This journal is © The Royal Society of Chemistry 2013
$^{13}$C NMR of ligand 2 (dvtpy) in CDCl$_3$:

![NMR spectra of $^{13}$C NMR of ligand 2 (dvtpy) in CDCl$_3$.](image)

Electronic Supplementary Material (ESI) for Dalton Transactions
This journal is © The Royal Society of Chemistry 2013
EI-MS of ligand 2 (dvtpy):
$^1$H NMR of complex 3\((PF_6)\) in CD$_3$CN:

MALDI-MS spectrum of complex 3\((PF_6)\):
$^1$H NMR of complex 4(PF$_6$) in CD$_3$CN:

MALDI-MS spectrum of complex [4](PF$_6$):

MALDI-TOF,CCA,BBC-50-1,2013-0225
$^1$H NMR of complex 5(PF$_6$)$_2$ in CD$_3$CN:

MALDI-MS spectrum of complex 5(PF$_6$)$_2$:
$^1$H NMR of complex $6$(PF$_6$)$_2$ in CD$_3$CN:

MALDI-MS spectrum of complex $6$(PF$_6$)$_2$: